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      (FILE 'HOME' ENTERED AT 11:07:00 ON 11 FEB 2008)
      FILE 'CA' ENTERED AT 11:07:08 ON 11 FEB 2008
L1   109551 S CREOSO? OR TAR OR(POLYCYCLIC OR POLYNUCLEAR)(W)(AROMATIC OR
            AROM)(W)HYDROCARBON OR PAH
L2    28384 S (SOIL OR CLAY OR SAND)(4A)(PARTITION? OR ADSOR? OR ABSOR?)
L3      369 S L1 AND L2
L4    20193 S (WATER OR H2O OR AQUEOUS)(4A)PARTITION?
L5      483 S L1 AND L4
L6       44 S L3 AND L5
L7       23 S L3 AND(RISK OR ENVIRONMENTAL FACTORS)
L8       40 S L3 AND (NONEXTRACT? OR NON EXTRACT? OR (DESOR? AND(ADSOR? OR
            ABSOR?)))
L9       72 S L6-8 AND PY<2004
      FILE 'ENCOMPLIT' ENTERED AT 11:20:00 ON 11 FEB 2008
L10      24 S L9
      FILE 'CA, ENCOMPLIT' ENTERED AT 11:20:51 ON 11 FEB 2008
L11      88 DUP REM L9 L10 (8 DUPLICATES REMOVED)

=> d bib,ab l11 1-88

L11  ANSWER 4 OF 88  CA  COPYRIGHT 2008 ACS on STN
AN   139:234485  CA
TI   Evidence for Very Tight Sequestration of BTEX Compounds in Manufactured
     Gas Plant Soils Based on Selective Supercritical Fluid Extraction and
     Soil/Water Partitioning
AU   Hawthorne, Steven B.; Miller, David J.
CS   Energy and Environmental Research Center, University of North Dakota,
     Grand Forks, ND, 58201, USA
SO   Environmental Science and Technology (2003), 37(16), 3587-3594
AB   Benzene, toluene, ethylbenzene, o-, m-, and p-xylenes (BTEX), and
     polycyclic arom. hydrocarbons (PAHs) were extd. from eight manufd. gas
     plant (MGP) soils from sites that had been abandoned for several
     decades.  Supercrit. fluid extn. (SFE) with pure carbon dioxide
     demonstrated the presence of BTEX compds. that were highly sequestered
     in both coal gas and oil gas MGP soils and soots.  Benzene was generally
     the slowest compd. to be extd. from all samples and was even more
     difficult to ext. than most two- to five-ring PAHs found in the same
     samples.  Since the soly. of benzene in carbon dioxide is 2-5 orders of
     magnitude higher than the solubilities of PAHs, these results
     demonstrate that benzene was more tightly sequestered than toluene,
     ethylbenzene, xylenes, or the multi-ring PAHs.  Addnl. evidence for very
     tight binding was based on the fact that BTEX concns. detd. using either
     SFE or with methylene chloride sonication were much higher than those
     obtained by the US EPA purge-and-trap method, esp. for benzene (whose
     concn. was underestd. by as much as 1000-fold by the EPA method).
     However, soil/water desorption showed little benzene mobility, and Kd
     values for benzene were 1-2 orders of magnitude higher than those calcd.
     based on literature sorption KOC values.  These results indicate that
     environmentally relevant concns. of benzene may be better represented by
     mild extn. methods than by methods capable of extg. tightly bound
     benzene.
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AN   138:122134   CA
TI   Concentration-dependent kinetics of pollutant desorption from soils
AU   Braida, Washington J.; White, Jason C.; Zhao, Dongye; Ferrandino,
        Francis J.; Pignatello, Joseph J.
CS   The Connecticut Agricultural Experiment Station, New Haven, CT, 06504-
        1106, USA
SO   Environmental Toxicology and Chemistry (2002), 21(12), 2573-2580
AB   Sorption-desorption kinetics play a major role in transport and
        bioavailability of pollutants in soils. Contaminant concn. is a
        potentially important factor controlling kinetics. A previous paper
        dealt with the effect of solute concn. on fractional uptake rates of
        phenanthrene and pyrene from a finite aq. source. In this study the
        authors detd. the effect of initial phenanthrene sorbed concn. (q0) on
        the fractional mass desorption rates from each of six soils to a zero-
        concn. soln., approximated by including a polymer adsorbent (Tenax) as a
        third-phase sink. The soils were preequilibrated with phenanthrene for
        180 days. Consistent with theory, the fractional desorption rates detd.
        by empirical curve fitting increased with q0 provided the isotherm was
        nonlinear. After 500 to 600 days of desorption at the steepest possible
        concn. gradient, all soils retained a highly resistant fraction, which
        ranged from 4 to 31% of q0, except for one soil at a high q0. The
        highly resistant fraction decreased with increasing q0 for nonlinear
        isotherm cases, but increased with q0 for linear or nearly linear
        isotherm cases. Application of a nonlinear diffusion model, the dual-
        mode diffusion model (DMDM), to the nonresistant fraction gave
        reasonably good fits. The DMDM attributes the increase with concn. of
        the apparent diffusivity to a decrease in the proportion of sorbate
        occupying immobile sites (holes) in soil org. matter. The concn.-
        dependent term in the expression for the apparent diffusivity correlated
        with either of two indexes that reflect the linearity of the sorption
        isotherm. Bunker C oil present in one soil acted as a partition domain.
        The findings of this study are consistent with heterogeneous models of
        soil org. matter, and indicate that concn. effects should be taken into
        account whenever desorption rate is important.

AN   137:278611   CA
TI   Sorption strength of persistent organic pollutants in particle-size
        fractions of urban soils
AU   Krauss, Martin; Wilcke, Wolfgang
CS   Institute of Soil Science and Soil Geography, University of Bayreuth,
        Bayreuth, D-95440, Germany
SO   Soil Science Society of America Journal (2002), 66(2), 430-437
AB   The bioavailability of persistent org. pollutants in soils depends on
        their sorption strength that may vary among different pools. The
        authors hypothesized that polycyclic arom. hydrocarbons (PAHs) and
        polychlorinated biphenyls (PCBs) had different soil org. C-water
        partition coeffs. (Koc) among particle-size fractions. The concns. of
        20 PAHs and 12 PCBs were detd. in coarse-sand, fine-sand, silt, and clay
        fractions of 11 urban topsoils (0-5 cm). The Koc values were detd.
        using sequential extn. with methanol-water mixts. (35 and 65% methanol)

at 60°. The Σ20 PAHs concns. ranged from 0.3 to 186 mg kg-1, and the

Σ12 PCBs concns. from 1.2 to 158 µg kg-1. In most soils, the PAH
concns. decreased in the order silt > clay $\geq$ fine sand > coarse sand,
and those of the PCBs in the order clay > silt $\geq$ fine sand > coarse
sand. The distribution of PAHs among particle-size fractions was more
heterogeneous than reported in the literature because the soils received
PAH-contaminated wastes (ashes, slags, rubble) with varying texture. In
all soils, the proportions of two- or three-ring PAHs decreased with
decreasing particle size, indicating that the PAH mixt. was increasingly
altered. The Koc values of the PAHs were three to 10 times higher than
those of the PCBs with similar octanol-water partition coeffs. (Kow).
The mean Koc values of all individual PAHs were highest in silt. For
all individual PCBs, mean Koc values were highest in clay. The Koc
values of PAHs and PCBs varied up to a factor of 100 among the studied
soils and particle-size fractions. Particle-size fractions with highest
PAH and PCB concns. also showed highest Koc values indicating low
bioavailability.

L11   ANSWER 26 OF 88 CA COPYRIGHT 2008 ACS on STN
AN   132:298021 CA
TI   Sorption of selected polycyclic aromatic hydrocarbons on soils in oil-
       contaminated systems
AU   Walter, T.; Ederer, H. J.; Forst, C.; Stieglitz, L.
CS   Forschungszentrum Karlsruhe GmbH (FZK), Institut fur Technische Chemie
       (ITC-CPV), Karlsruhe, D-76021, Germany
SO   Chemosphere (2000), 41(3), 387-397
AB   Adsorption and desorption behavior of selected polycyclic arom.
       hydrocarbons (PAH) on different soils was examd. using static and
       dynamic methods. Base on a system including 4 phases (soil, water, oil
       adsorbed, oil in emulsion), a model to describe adsorption behavior in
       the presence of oil was developed. In systems without oil, a similar
       partitioning behavior in batch and column expts. was obsd. for all PAH.
       Thus, distribution coeffs. can be calcd. from arom. compd. octanol/water
       coeff. and the soil org. C content. The presence of a lipophilic phase
       significantly affected PAH sorption, usually resulting in a drastic
       decrease of adsorption with increasing oil content in the system. For
       the oil-contaminated system, modeling adsorption behavior enabled a more
       detailed interpretation of exptl. observations and calcn. of PAH
       sorption behavior from characteristic parameters of the components
       involved.

L11   ANSWER 30 OF 88 CA COPYRIGHT 2008 ACS on STN
AN   131:161370 CA
TI   Impact of adsorption and desorption on bioremediation of PAH
       contaminated estuarine sediments
AU   Antia, J. E.; Tabak, H. H.; Suidan, M. T.
CS   University of Cincinnati, Cincinnati, OH, 45221-0071, USA
SO   International In Situ and On-Site Bioremediation Symposium, 5th, San
       Diego, Apr. 19-22, 1999 (1999), Volume 8, 283-288. Editor(s): Alleman,
       Bruce C.; Leeson, Andrea. Publisher: Battelle Press, Columbus, Ohio.
AB   The extent of adsorption and desorption of org. pollutants in sediments

has a major influence on their fate and transport in the environment. Exptl. obtained adsorption/desorption isotherms for 2, 3 and 4-ring polycyclic arom. hydrocarbons (PAHs), a major class of carcinogenic environmental contaminants, are reported. The possible predictive nature of their calcd. octanol-water partition coeffs. for detg. sorption capacities of sediments for PAHs having more than 4 carbon rings, is also explored.

L11   ANSWER 31 OF 88 CA COPYRIGHT 2008 ACS on STN
AN   130:71079 CA
TI   Adsorption-Partitioning Uptake of Nine Low-Polarity Organic Chemicals on a Natural Sorbent
AU   Xia, Guoshou; Ball, William P.
CS   Department of Geography and Environmental Engineering, The Johns Hopkins University, Baltimore, MD, 21218, USA
SO   Environmental Science and Technology (1999), 33(2), 262-269
AB   Sorption of comparatively nonpolar org. chems. by natural solids not only can be predominated by partitioning with org. matter but also can reflect a substantial contribution from adsorption at low relative concn. Sorption of nine polycyclic arom. hydrocarbons (PAHs) and chlorinated benzenes (CBs) was studied on a subsurface aquitard through batch study, with results interpreted by a composite adsorption-partitioning model. For both PAHs and CBs, the low-concn. adsorption slope and the coeff. for partitioning each correlated well with Kow; however, PAHs consistently sorbed more strongly than CBs at given Kow. For all chems., adsorption contributions were only important at low relative concn. and could be successfully modeled by assuming either Langmuir-type or Polanyi-type isotherms. Isotherms for all liq. chems. fell on a single isotherm when plotted on a Polanyi basis (adsorbed vol. per mass of sorbent vs. adsorption potential d.), providing evidence that a pore-filling phenomenon is involved. Adsorbed vols. of solid chems. were obsd. to be less than those of liqs. at the same adsorption potential d., consistent with a redn. in packing efficiency and as previously reported for activated carbons. These results suggest that the adsorption contribution is from pore filling within microporous solids.

L11   ANSWER 37 OF 88 CA COPYRIGHT 2008 ACS on STN
AN   128:7060 CA
TI   Partition Characteristics of Polycyclic Aromatic Hydrocarbons on Soils and Sediments
AU   Chiou, Cary T.; McGroddy, Susan E.; Kile, Daniel E.
CS   Denver Federal Center, U.S. Geological Survey, Denver, CO, 80225, USA
SO   Environmental Science and Technology (1998), 32(2), 264-269
AB   The partition behavior was detd. for naphthalene, phenanthrene, and pyrene from water to a range of soil and sediment samples. The measured partition coeffs. of the individual PAHs between soil/sediment org. matter (SOM) and water (i.e., Koc values) are relatively invariant either for the clean (uncontaminated) soils or for the clean sediments; however, the mean Koc values on the sediments are about twice the values on the soils. This disparity is similar to the earlier observation for other nonpolar solutes and reflects the compositional differences between soil and sediment org. matters. No significant differences in

Koc are obsd. between a clean coastal marine sediment and freshwater
sediments. The coastal sediments that are significantly impacted by
org. contaminants exhibit higher Koc values. At given Kow values
(octanol-water), the PAHs exhibit much higher Koc values than other
relatively nonpolar solutes (e.g., chlorinated hydrocarbons). This
effect results from the enhanced partition of PAHs to SOM rather than
from lower Kow values of PAHs at given supercooled liq. solute
solubilities in water. The enhanced partition of PAHs over other
nonpolar solutes in SOM provides an account of the markedly different
correlations between log Koc and log Kow for PAHs and for other nonpolar
solutes. The improved partition of PAHs in SOM stems apparently from
the enhanced compatibility of their cohesive energy densities with those
of the arom. components in SOM. The approx. arom. fraction in
soil/sediment org. matter was assessed by solid-state 13C-NMR
spectroscopy.

L11   ANSWER 54 OF 88 CA COPYRIGHT 2008 ACS on STN
AN   122:196307 CA
TI   Predicting aqueous concentrations of polynuclear aromatic hydrocarbons
      in complex mixtures
AU   Lane, W. F.; Loehr, R. C.
CS   Raleigh, NC, 27612, USA
SO   Water Environment Research (1995), 67(2), 169-73
AB   The release of polynuclear arom. hydrocarbons (PAHs) from buried org.
      wastes into groundwater occurs over long periods of time. Estn. of the
      equil. aq. concn. or soly. of PAHs in mixts. of contaminated soil and
      water can aid in predicting fate and transport processes. Four methods
      were evaluated for their effectiveness in predicting aq. concns. of 16
      PAH compds. The results indicated that a cosolvent method was effective
      in predicting aq. concns. and that equil. models (Raoult's law) provided
      ests. within 1 order of magnitude of PAH concns. in complex mists.
      Predicted concns. from soil-water partition coeffs. generally were
      within 1 order of magnitude of actual concns.

L11   ANSWER 70 OF 88 CA COPYRIGHT 2008 ACS on STN
AN   116:193199 CA
TI   Estimating the equilibrium aqueous concentrations of polynuclear
      aromatic hydrocarbons in complex mixtures
AU   Lane, William F.; Loehr, Raymond C.
CS   Rem. Technol., Inc., Chapel Hill, NC, 27514, USA
SO   Environmental Science and Technology (1992), 26(5), 983-90
AB   By use of a two-phase liq.-liq. equil. model, the distribution of
      nonpolar solutes between water (polar phase) and soil org. matter
      (nonpolar phase) was related to principles of equil. chem. Batch equil.
      expts. were conducted with field-contaminated soils. Aq. concns. of
      polynuclear arom. hydrocarbons were measured directly, predicted through
      the use of org. cosolvents, and calcd. from Raoult's law, thereby
      providing a three-way comparison of solute behavior in water. Compn. of
      the nonpolar phase strongly influenced the solute concns. in the polar
      phase, suggesting that Raoult's law is applicable to complex mixts.
      Tar-water partitioning expts. demonstrated that the distribution of
      solutes in complex mixts. is analogous to partitioning among multiple
      solvents.

L11   ANSWER 87 OF 88   CA   COPYRIGHT 2008 ACS on STN
AN   94:89967   CA
OREF 94:14573a,14576a
TI   Sorption of polynuclear aromatic hydrocarbons by sediments and soils
AU   Means, Jay C.; Wood, Susanne G.; Hassett, John J.; Banwart, Wayne L.
CS   Cent. Environ. Estuarine Stud., Univ. Maryland, Solomons, MD, 20688, USA
SO   Environmental Science and Technology (1980), 14(12), 1524-8
AB   The sorption of pyrene [129-00-0], 7,12-dimethylbenz[a]anthracene [57-
      97-6], 3-methylcholanthrene [56-49-5], and 1,2,5,6-dibenzathracene [53-
      70-3] on 14 soil and sediment samples exhibiting a wide range of
      physicochem. properties was studied. The equil. Freundlich consts. (Kd)
      and linear partition coeffs. (Kp) for each compd. were highly correlated
      with the org. C content of the soils/sediments tested. No other
      significant correlations with soil/sediment properties were obsd. The
      sorption consts. (Kp) when normalized to org. C content of the substrate
      (Koc) were predictive of the octanol-water partition coeffs. for the
      compds. tested. A highly significant neg. correlation was obsd. between
      log Koc and log (water soly.) for these compds. Exptl. values of the
      water soly. and octanol-water partition coeffs. for the 4 compds. are
      reported.

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STN INTERNATIONAL LOGOFF AT 11:21:30 ON 11 FEB 2008